

AMENDMENTS TO THE CLAIMS

1-39. (Canceled)

40. (Currently Amended) A stepping motor comprising:

a bracket including a first supporting unit and a third supporting unit;

a housing including a first portion coupled to the third supporting unit, a second portion connected to the first portion, and a third portion integrally formed on the second portion;

a stator including a first stator faced with the first portion of the housing and a second stator faced with the second portion of the housing, wherein the stator is disposed in the housing to form an electric field;

a magnet faced with the stator and configured to provide a magnetic field;

a shaft having a lead screw and rotating with the magnet, wherein the shaft is rotatably supported by the first supporting unit;

a second supporting unit disposed in the third portion of the housing; and

a stopper coupled to the third portion of the housing and configured to elastically support the shaft together with the second supporting unit and to prevent the second supporting unit from being removed out from the third portion of the housing, wherein an inner surface of the stopper is contacted with an outer surface of the third portion of the ~~housing~~housing.

wherein the stopper is overlapped with the third portion of the housing in a radial direction and the stopper is not overlapped with the first and second portion of the housing in the radial direction.

41. (Previously Presented) The stepping motor according to claim 40, wherein the second portion of the housing is integrally formed on the first portion of the housing.

42. (Previously Presented) The stepping motor according to claim 40, wherein the third supporting unit includes a hooking part formed by bending the bracket.

43. (Previously Presented) The stepping motor according to claim 42, wherein the third supporting unit includes a supporting member coupled to the hooking part.

44. (Previously Presented) The stepping motor according to claim 40, wherein the magnet includes a first magnet faced with the first stator and a second magnet faced with the second stator, and wherein the first magnet and the second magnet are spaced from each other.

45. (Previously Presented) The stepping motor according to claim 40, wherein the second supporting unit includes a ball contacting an end of the shaft and a thrust bearing contacting the ball.

46. (Previously Presented) The stepping motor according to claim 45, wherein the second supporting unit includes a spring contacting the thrust bearing.

47. (Previously Presented) The stepping motor according to claim 40, wherein the stopper includes an inclined inner surface faced with the outer surface of the third portion of the housing.

48. (Currently Amended) A stepping motor comprising:

a bracket including a first supporting unit and a third supporting unit;

a housing including a first portion coupled to the third supporting unit, a second portion connected to the first portion, and a third portion integrally formed on the second portion, wherein the second portion of the housing have a first section, and wherein the third portion of the housing have a second section smaller than the first section;

a stator including a first stator faced with the first portion of the housing and a second stator faced with the second portion of the housing, wherein the stator is disposed in the housing to form an electric field;

a magnet faced with the stator and configured to provide a magnetic field;

a shaft having a lead screw and rotating with the magnet, wherein the shaft is rotatably supported by the first supporting unit;

a second supporting unit disposed in the third portion of the housing; and

a stopper coupled to the third portion of the housing and configured to support the shaft together with the second supporting unit and to prevent the second supporting unit from being removed out from the third portion of the housing.

wherein the stopper is overlapped with the third portion of the housing in a radial direction and the stopper is not overlapped with the first and second portion of the housing in the radial direction, and

wherein the second supporting unit, the third portion of the housing, and the stopper are overlapped in a plane perpendicular to an axis direction of the shaft.

49. (Previously Presented) The stepping motor according to claim 48, wherein the second portion of the housing is integrally formed on the first portion of the housing.

50. (Previously Presented) The stepping motor according to claim 48, wherein the third supporting unit includes a hooking part formed by bending the bracket.

51. (Previously Presented) The stepping motor according to claim 50, wherein the third supporting unit includes a supporting member coupled to the hooking part.

52. (Previously Presented) The stepping motor according to claim 48, wherein the magnet includes a first magnet faced with the first stator and a second magnet faced with the second stator, and wherein the first magnet and the second magnet are spaced from each other.

53. (Previously Presented) The stepping motor according to claim 48, wherein the second supporting unit includes a ball contacting an end of the shaft and a thrust bearing contacting the ball.

54. (Previously Presented) The stepping motor according to claim 53, wherein the second supporting unit includes a spring contacting the thrust bearing.

55. (Previously Presented) The stepping motor according to claim 48, wherein the stopper includes an inclined inner surface faced with the outer surface of the third portion of the housing.

56. (Currently Amended) A stepping motor comprising:
a bracket including a first supporting unit and a third supporting unit;

a housing including a first portion coupled to the third supporting unit, a second portion connected to the first portion, and a third portion integrally formed on the second portion, wherein the second portion of the housing have a first section, and wherein the third portion of the housing have a second section smaller than the first section;

a stator including a first stator faced with the first portion of the housing and a second stator faced with the second portion of the housing, wherein the stator is disposed in the housing to form an electric field;

a magnet faced with the stator and configured to provide a magnetic field;

a shaft having a lead screw and rotating with the magnet, wherein the shaft is rotatably supported by the first supporting unit;

a second supporting unit disposed in the third portion of the housing; and

a stopper coupled to the third portion of the housing and configured to rotatably support the shaft together with the second supporting unit and to prevent the second supporting unit from being removed out from the third portion of the housing,

wherein the stopper is overlapped with the third portion of the housing in a radial direction and the stopper is not overlapped with the first and second portion of the housing in the radial direction.

wherein the second section of the third portion of the housing is as large as the second supporting unit can be inserted and installed at the third portion of the housing, and

wherein a first portion of the stopper is contacted with a side surface of the third portion of the housing and wherein a second portion of the stopper is contacted with an outer surface of the third portion of the housing.

57. (Previously Presented) The stepping motor according to claim 56, wherein the second portion of the housing is integrally formed on the first portion of the housing.

58. (Previously Presented) The stepping motor according to claim 56, wherein the third supporting unit includes a hooking part formed by bending the bracket.

59. (Previously Presented) The stepping motor according to claim 58, wherein the third supporting unit includes a supporting member coupled to the hooking part.

60. (Previously Presented) The stepping motor according to claim 56, wherein the magnet includes a first magnet faced with the first stator and a second magnet faced with the second stator, and wherein the first magnet and the second magnet are spaced from each other.

61. (Previously Presented) The stepping motor according to claim 56, wherein the second supporting unit includes a ball contacting an end of the shaft and a thrust bearing contacting the ball.

62. (Previously Presented) The stepping motor according to claim 61, wherein the second supporting unit includes a spring contacting the thrust bearing.

63. (Previously Presented) The stepping motor according to claim 56, wherein the stopper includes an inclined inner surface faced with the outer surface of the third portion of the housing.